

Sacramento POTW Basin Plan Amendment
DRAFT Project Alternatives
(Excerpt from Draft Staff Report)

4 PROJECT ALTERNATIVES

This Staff Report evaluates three project alternatives for the MUN beneficial use designation, water quality objectives, implementation provisions, and monitoring and surveillance programs for the Sacramento Case Study water bodies.

The three project alternatives are as follows:

1. No Action
2. Application of the Sources of Drinking Water Policy (Resolution 88-63) exception 2b
3. Development of Site Specific Objectives (SSOs)

Table 2 shows the components of these alternatives. For Alternative 2, three options for the monitoring and surveillance program are listed. Each alternative is further discussed below.

Table 2: Alternatives Matrix

Project Alternatives	Beneficial Use Designation Components	Water Quality Objective Components	Implementation Components	Monitoring/ Surveillance (M/S) Components
1. No Action	No Change in MUN Beneficial Use Designation	No New Water Quality Objectives (WQOs)	No New Implementation Program	No New Monitoring and Surveillance Program
2. Application of the Sources of Drinking Water Policy (Resolution 88-63) exception 2b	Use the Sources of Drinking Water Policy (State Resolution 88-63) exception 2b and supporting evidence to de-designate MUN	Remove MUN WQOs	List POTW receiving waters in Basin Plan Beneficial Use chapter with No MUN	a. Use existing Monitoring Programs (e.g. ILRP, NPDES)
				b. Use existing programs, but also allow other regional or solo programs (Hybrid Approach)
				c. Develop a new regional monitoring

Project Alternatives	Beneficial Use Designation Components	Water Quality Objective Components	Implementation Components	Monitoring/ Surveillance (M/S) Components
				program.
3. Development of Site Specific Objectives (SSOs)	No Change in MUN Beneficial Use Designation	Develop Individual Site Specific Objectives (SSOs)	Amend Basin Plan with specific Site Specific Objectives (SSOs)	Develop M/S program through the NPDES permit process

4.1 NO ACTION ALTERNATIVE

This alternative would not amend the Basin Plan; rather it would continue to maintain the current MUN beneficial use designation on the twelve Sacramento Case Study water bodies. Accordingly, there would be no change in water quality objectives associated with meeting the MUN water quality objectives and the current MUN-related water quality objectives from the Title 22 primary and secondary MCL tables, as well as CTR criteria for the protection of human health from consumption of water and organisms, would continue to apply. In addition, no new implementation provisions or monitoring and surveillance programs would be initiated.

4.2 APPLICATION OF THE SOURCES OF DRINKING WATER POLICY (RESOLUTION 88-63) EXCEPTION 2B ALTERNATIVE

This alternative would involve a change to the Basin Plan, specifically focused on the Sacramento Case Study water bodies.

The Sources of Drinking Water Policy (Resolution 88-63) contains an exception (2b) for water in “*systems designed or modified for the primary purpose of conveying or holding agricultural drainage waters*”. The twelve Sacramento Case Study water bodies have all been characterized as agricultural drains and thus are eligible for MUN de-designation under this exception. MUN de-designation means that the MUN-related water quality objectives would longer apply to the twelve water bodies. The water bodies that meet the exception would be listed in the Basin Plan in an appendix that is referenced in Chapter 2 Beneficial Uses. No changes would be made to the water quality objectives for other applicable beneficial uses.

4.2.1 Evidence to support MUN de-designation via the Sources of Drinking Water Policy exceptions

As summarized in section 3.1, Characteristics of the Sacramento Case Study Water Bodies, the MUN use in these twelve water bodies has not occurred in the past, is not occurring presently, and is not expected to occur in the foreseeable future. In addition, these water bodies were designed or modified for conveying or holding agricultural drainage, thus meeting the Sources of Drinking Water Policy exception 2b.

A water body only needs to meet one Sources of Drinking Water Policy exception to be eligible to have the MUN beneficial use removed. However, water quality results presented in section 3.2, Evaluation of Water Quality in Sacramento Valley Case Study Water Bodies, and 3.3, Synoptic Evaluation of Drinking Water Constituents of Concern, also provide supporting evidence that many of these water bodies meet the Sources of Drinking Water Policy exception 1b, *“There is contamination, either by natural processes or by human activity (unrelated to the specific pollution incident), that cannot reasonably be treated for domestic use using either Best Management Practices or best economically achievable treatment practices”*. The primary sources of water to these water bodies are intermittent and/or seasonal flows that are documented to have constituent concentrations of pathogen, pesticide, salt and nitrates, metals and other contaminant concentrations that exceed the current MUN water quality objectives of Title 22 primary and secondary MCLs. These characteristics were recognized by the Division of Drinking Water, which regulates public drinking water systems, when they developed a policy on the use of “Extremely Impaired Sources” as drinking water sources. The policy listed agricultural drainage, recycled water, urban runoff and effluent dominated streams as examples of extremely impaired sources (DDW, 1997). The policy states that extremely impaired sources with known or suspected contaminants *“should not be considered for direct human consumption where alternatives are available”*.

Central Valley Water Board staff met with Division of Drinking Water’s Richard Hinrichs (Chief of Northern California Section) and Ali Rezvani (Head Engineer for the Sacramento region) in 2013 to discuss this MUN evaluation effort (Central Valley Water Board, 2013). The Division of Drinking Water representatives confirmed that there was no compelling reason to think that the cities in the Sacramento Case Study area would seek to use Ag drainage water as a drinking water source. Surface water treatment plants are very expensive as compared to ground water systems, and it would not be practical to build one for an impaired source of water that only receives a seasonal or intermittent flow. Use of Ag drainage water would also require additional monitoring of constituents of concern like herbicides and pesticides. Use of water that contains wastewater effluent is also not recommended, especially if there is less than a 20:1 dilution with supply water.

4.2.2 Federal 40 CFR 131.10(g) factors

Many of the exceptions in the Sources of Drinking Water Policy mirror the federal 40 CFR 131.10(g) factors for removing a designated beneficial use which is not an existing use.

As described in section 4.2.1, the Sacramento Case Study water bodies have naturally and human caused conditions that are sources of pollution and prevent the attainment of use (40 CFR 131.10(g)(1) and 40 CFR 131.10(g)(3)). In addition, the intermittent or low flow conditions in these water bodies are not conducive to sustaining a public or domestic water system (40 CFR 131.10(g)(2)). These water bodies also contain dams, diversions and other types of hydrologic modifications that were constructed specifically

to support agricultural activities, not municipal or domestic supply activities (40 CFR 131.10(g)(4)).

4.2.3 Monitoring requirement for utilizing exception 2b

Monitoring and surveillance is a critical piece of this project alternative. Resolution 88-63 requires monitoring of the discharge from systems using exception 2b to “*assure compliance with all relevant water quality objectives as required by the Regional Board*”. Three monitoring and surveillance options exist for this project alternative: a) use only existing monitoring programs (e.g. ILRP, NPDES), or; b) use existing monitoring programs but also provide the flexibility to allow monitoring requirements to be fulfilled with other existing regional or solo monitoring programs (hybrid approach), or; c) require a new regional monitoring program to specifically address monitoring requirements pertaining to the de-designation of MUN in the twelve water bodies. A review of these options is provided in Section 5.3, Monitoring and Surveillance. The existing NPDES program would continue to implement the monitoring and surveillance program needed to protect any other applicable beneficial uses.

4.3 DEVELOPMENT OF SITE SPECIFIC OBJECTIVES (SSOs) ALTERNATIVE

This alternative would involve changes to the Basin Plan pertaining to the water quality objectives for the twelve Sacramento Case Study water bodies. This alternative does not involve a change to the beneficial use designation of MUN to the twelve water bodies. Instead, the development of site specific objectives (SSOs) for constituents of concern for each water body segment in the Sacramento Case Study would be developed on a water body-by-water body basis. SSOs for MUN-related constituents of concern for the Sacramento POTWs could include one or more of the following constituents: nitrate, electrical conductivity, arsenic, trihalomethanes, aluminum, iron, and manganese. Each water body with a SSO would be listed by constituent in Chapter 3 (Water Quality Objectives) of the Basin Plan. The existing NPDES program would be responsible to implement the monitoring and surveillance program needed to protect the applicable beneficial uses.

4.4 EVALUATION OF PROJECT ALTERNATIVES

The Basin Plan Amendment alternatives were evaluated based on their ability to meet the following primary selection criteria:

1. Maintain consistency with federal and state water quality laws and policies as applicable (e.g. Sources of Drinking Water Policy, Antidegradation Policy etc.)
2. Provide the appropriate protection of MUN in the Sacramento Case Study water bodies with consideration given to the current and potential future use of drinking water.

3. Provide protection of the MUN use for downstream waters where the beneficial use applies.
4. Make efficient use of Central Valley Water Board resources to develop and implement water quality standards
5. Provide a cost-effective solution for the Sacramento POTWs faced with implementing new treatment processes to meet MUN use-based water quality criteria/objectives when no such use exists in their immediate receiving waters

4.5 RECOMMENDED ALTERNATIVE

Central Valley Water Board staff recommend Alternative 2, which is to de-designate MUN from the twelve water bodies in the Sacramento Case Study area by applying the Sources of Drinking Water Policy exception 2b. Alternative 2 satisfies the selection criteria since the action would:

1. Be consistent with both federal and state water quality laws and policies. Section 4.2 demonstrates that the twelve water bodies meet the exception 2b in the Sources of Drinking Water Policy as well as the federal 40 CFR 131.10(g) requirements for beneficial use de-designation.
2. Be an appropriate beneficial use de-designation for these twelve water bodies. Section 4.2 demonstrates that these water bodies have no past, current or planned future use for municipal or domestic supply.
3. Ensure that downstream water bodies are protected for the MUN beneficial use. Use of exception 2b in the Sources of Drinking Water Policy requires downstream monitoring to protect the MUN beneficial use where it is occurring.
4. Be the most beneficial and cost effective measure because it addresses the appropriate MUN designation with one Basin Plan Amendment for all twelve water bodies and does not require extensive scientific review or additional costly measures.
5. Not require the Sacramento POTWs to implement new treatment processes to meet MUN-related discharge limitations in their NPDES permits when no such use exists in their immediate receiving waters.

Implementation of Alternative 1 (No Action) would not satisfy the selection criteria, because it would not be consistent with the intent of the Sources of Drinking Water Policy exception 2b for water bodies that are constructed or modified to hold or convey agricultural drainage. In addition, maintaining the MUN beneficial use does not align

well with the Department of Drinking Water's guidance on the use of impaired drinking water sources. Implementation of Alternative 1 would also result in costly facility upgrades for the POTW wastewater treatment plants to meet the primary and secondary MCLs.

Adoption of Alternative 3 (Site Specific Objectives) would not satisfy the selection criteria because it also would not be consistent with the intent of the Sources of Drinking Water Policy exception 2b for water bodies that are constructed or modified to hold or convey agricultural drainage. Developing SSOs also requires extensive scientific review and would likely require multiple Basin Plan Amendments to address each water body and its constituents of concern, which would challenge Central Valley Water Board staff resources. Unlike Alternative 2, SSOs do not address the primary question of what the appropriate MUN beneficial use protection is for these twelve water bodies.

The recommended option for the Monitoring and Surveillance components in Alternative 2 (2a-2c) is evaluated further in section 5.3, Monitoring and Surveillance.